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UNITED STATES PATENT AND TRADEMARK OFFICE

APPLICATION NO.	FILING DATE	FIRST NAMED INVENTOR	ATTORNEY DOCKET NO.	CONFIRMATION NO.
09/482,178	01/12/2000	Theodore M. Osborne, II	1306	6648

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EXAMINER
STEELMAN, MARY J

ART UNIT	PAPER NUMBER
2122	12

DATE MAILED: 07/31/2003

Please find below and/or attached an Office communication concerning this application or proceeding.

PTO-90C (Rev. 07-01)

	Application No.	**Applicant(s)**
Office Action Summary	09/482,178	OSBORNE, II ET AL.
	Examiner	**Art Unit**
	Mary J. Steelman	2122

-- The MAILING DATE of this communication appears on the cover sheet with the correspondence address --

Period for Reply

A SHORTENED STATUTORY PERIOD FOR REPLY IS SET TO EXPIRE _3_ MONTH(S) FROM
THE MAILING DATE OF THIS COMMUNICATION.
- Extensions of time may be available under the provisions of 37 CFR 1.136(a). In no event, however, may a reply be timely filed after SIX (6) MONTHS from the mailing date of this communication.
- If the period for reply specified above is less than thirty (30) days, a reply within the statutory minimum of thirty (30) days will be considered timely.
- If NO period for reply is specified above, the maximum statutory period will apply and will expire SIX (6) MONTHS from the mailing date of this communication.
- Failure to reply within the set or extended period for reply will, by statute, cause the application to become ABANDONED (35 U.S.C. § 133).
- Any reply received by the Office later than three months after the mailing date of this communication, even if timely filed, may reduce any earned patent term adjustment. See 37 CFR 1.704(b).

Status

1)☒ Responsive to communication(s) filed on _08 July 2003_ .

2a)☒ This action is **FINAL.**   2b)☐ This action is non-final.

3)☐ Since this application is in condition for allowance except for formal matters, prosecution as to the merits is closed in accordance with the practice under *Ex parte Quayle,* 1935 C.D. 11, 453 O.G. 213.

Disposition of Claims

4)☒ Claim(s) _1-18 and 20-22_ is/are pending in the application.

    4a) Of the above claim(s) _____ is/are withdrawn from consideration.

5)☐ Claim(s) _____ is/are allowed.

6)☐ Claim(s) _____ is/are rejected.

7)☐ Claim(s) _____ is/are objected to.

8)☐ Claim(s) _____ are subject to restriction and/or election requirement.

Application Papers

9)☐ The specification is objected to by the Examiner.

10)☒ The drawing(s) filed on _12 January 2000_ is/are: a)☒ accepted or b)☐ objected to by the Examiner.

    Applicant may not request that any objection to the drawing(s) be held in abeyance. See 37 CFR 1.85(a).

11)☐ The proposed drawing correction filed on _____ is: a)☐ approved b)☐ disapproved by the Examiner.

    If approved, corrected drawings are required in reply to this Office action.

12)☐ The oath or declaration is objected to by the Examiner.

Priority under 35 U.S.C. §§ 119 and 120

13)☐ Acknowledgment is made of a claim for foreign priority under 35 U.S.C. § 119(a)-(d) or (f).

    a)☐ All b)☐ Some * c)☐ None of:

      1.☐ Certified copies of the priority documents have been received.

      2.☐ Certified copies of the priority documents have been received in Application No. _____ .

      3.☐ Copies of the certified copies of the priority documents have been received in this National Stage application from the International Bureau (PCT Rule 17.2(a)).

    * See the attached detailed Office action for a list of the certified copies not received.

14)☐ Acknowledgment is made of a claim for domestic priority under 35 U.S.C. § 119(e) (to a provisional application).

    a) ☐ The translation of the foreign language provisional application has been received.

15)☐ Acknowledgment is made of a claim for domestic priority under 35 U.S.C. §§ 120 and/or 121.

Attachment(s)

1)☒ Notice of References Cited (PTO-892)

2)☐ Notice of Draftsperson's Patent Drawing Review (PTO-948)

3)☐ Information Disclosure Statement(s) (PTO-1449) Paper No(s) _____ .

4)☐ Interview Summary (PTO-413) Paper No(s). _____ .

5)☐ Notice of Informal Patent Application (PTO-152)

6)☐ Other: _____ .

DETAILED ACTION

1.   This action is in response to Amendment B filed 07/08/2003.

2.   As per Applicant request, claim 19 has been canceled. Claim 20 has been amended.

Claims 1-18 & 20-22 are pending.

3.   Previous Final Rejection, paper #8, is withdrawn, in view of Applicant' affidavit

swearing behind the filing date of the Underwood reference, US Patent 6,523,027.

Specification

4.   Applicant's amended title "Method and System for Testing Technology-Based Software

Components" is acceptable to Examiner.

5.   The amended Specification has been entered.

6.   In view of the amendments to the Specification, previous objections to the Specification

are hereby withdrawn.

Double Patenting

7.   Per Applicant's response in Amendment A, filed 01/21/2003, Applicant agrees to file a

terminal disclaimer associated with co-pending application, 09/548203, upon indication of

allowance.

Claim Rejections - 35 USC § 112

8.   The 35 USC 112 rejection is withdrawn in view of the cancellation of claim 19.

Claim Rejections - 35 USC § 103

9.   The following is a quotation of 35 U.S.C. 103(a) which forms the basis for all

obviousness rejections set forth in this Office action:

> (a) A patent may not be obtained though the invention is not identically disclosed or described as set forth in
> section 102 of this title, if the differences between the subject matter sought to be patented and the prior art are
> such that the subject matter as a whole would have been obvious at the time the invention was made to a person

having ordinary skill in the art to which said subject matter pertains. Patentability shall not be negatived by the manner in which the invention was made.

10.   **Claims 1-18 and 20-22** are rejected under 35 U.S.C. 103(a) as being unpatentable over

U.S. Patent 5,974,572 to Weinberg et al., in view of U.S. Patent 6,574,578 to Logan.

Weinberg disclosed a Web site (server) analysis program implemented as a collection of

software components. Weinberg's invention generates test scenarios (col. 2, lines 38-39 and col.

3, line 7) that emulates multiple concurrent users on the system. Weinberg specified that the

content tested is objects (components) (col. 6, lines 8-15) and that a user can retrieve a URL

(content object) from the server (col. 10, lines 7-9.)

Weinberg did not provide extensive details concerning the testing of individual

application components. However, Logan did disclose more specific details regarding

application components (Col. 2, lines 19-22 and col. 6, lines 52-54) and the utilization of a server

to coordinate testing.

Per claim 1:

-a) providing test code that exercises said software component of the application under test;

(Logan, col.), lines 25-31, "…integrated environment for component testing…")

-b) synchronizing and executing a plurality of instances of the test code and recording

performance data on said software component of the application under test; (Logan, col.), lines

17-24, "…The test suites are run locally …and the outcomes of the test cases are stored…)

-c) repeating step b) multiple times, with a different number of instances of the test code;

(Logan, col.), line 29, "…repeating an established suite of tests…")

-d) analyzing the recorded performance data to indicate a performance characteristic of said

software component of the application under test in response to load. (Logan, col. 7, line 47-49,

"...generates the test results transaction...posted to the database server...")

Therefore, it would have been obvious, to one of ordinary skill in the art, at the time of

the invention, to modify Weinberg's invention which generates a load test on a server by

including Logan's invention which disclosed more details regarding the testing of application

components (col. 2, lines 39-47) in a distributed environment (fig. 1), because extensive testing

of components is useful in comparing expected outcome versus actual outcome, interactive tests

can provide feedback, and checklist testing can ensure quality checks are performed in a

complete and consistent manner (Logan, col.7, lines 25-40).

Per claim 2:

-the step of providing test code includes generating test code automatically. (Weinberg, Col. 33,

lines 47-50, "...a code module is provided that automatically generates a load testing

scenario..." Also see Logan, col. 6, lines 59-64.)

Per claim 3:

-application under test is an object oriented language and the step of providing test code

comprises providing test code to exercise one software component of the application.

(Weinberg, col. 11, lines 61-67, col. 19, lines 60-64, and col. 20, lines 4-7. Also see Logan, col.

6, lines 52-56, "When testing components, e.g., JavaBeans...")

Per claim 4:

-the step of synchronizing comprises starting each instance of the test code at the same time. (Weinberg, Col. 20, lines 22-26, "A task manager process...handles issues related to the management of the threads, including the synchronization...").

Per claim 5:

-the step of synchronizing and executing comprises executing a portion of the plurality of instances of test code on a first computer and a portion of the plurality of instance of test code on a second computer connected to the network. (Weinberg, Fig. 25 and col. 32, lines 51-58, "...multiple Vusers (i.e., multiple instances of the Vuser executable) can be run simultaneously on a single workstation...This produces a load in which multiple client requests can...be pending at-a-time...").

Per claim 6:

Preparing a graphical display having as an independent variable the number of instances of the test code and the dependent variable is the performance data. (Weinberg, Fig. 26 and col. 18, lines 64-67, "...the Action Tracker plug-in communicates with the Web sites...to retrieve server access log files for performing Web site activity analyses. Also, col. 33, lines 3-8, "...user is presented with a set of graphical reports that allow the user (to) evaluate the site's performance...")

Per claim 7:

Preparing a graphical display having as an independent variable the number of instances of the test code and the dependent variable is derived from the performance data. (Weinberg, Fig. 26, col. 32, line 64 – col. 33, line 8, "...records various performance-related characteristics of these responses. These characteristics include...response times to individual client requests...the user

is presented with a set of graphical reports...the user can...compare response times of different site components...")

Per claim 8:

-application under test is resident on a first server within the network and the application has a remote interface and the test code is resident on at least a second computer within the network and exercises the software component of the application under test using the remote interface of the application under test. (Logan, col. 7, lines 41-49, "...client instantiates the software objects being tested...passes to ...server..." Also see fig. 1.)

Per claim 9:

-The step of analyzing includes displaying the analyzed data to a human user using a graphical user interface. (Weinberg, Col. 33, lines 3-4, "the user is presented with a set of graphical reports..." Also see Logan, col.7, lines 53-56 and Fig. 6.)

Per claim 10:

-a) specifying test conditions through a user interface to a test system;

-b) initiating through a user interface to the test system the gathering of test data on the performance of at least one software component of the application under test at a plurality of load conditions;

-c) specifying through a user interface to the test system the output format of the test data;

-d) displaying in the specified format the response of said at least one software component of the application under test to load.

(Logan, col. 7, lines 41-60, and fig. 6, "...AdriverPanel constructs a TestFrame frame window that contains a TestingPanel object which, in turn, contains any graphical elements of the component software being tested...")

Per claim 11:

-the specified format is a graphical format indicating response time as a function of load conditions. (Weinberg, Col. 33, line 3-4, "...the user is presented with a set of graphical reports...")

Per claim 12:

-the specified graphical format is a Hi-Lo plot. (Weinberg, Col. 33, line 3-4, "...the user is presented with a set of graphical reports...").

Per claim 13:

-the step of gathering data under a plurality of load conditions comprises initiating the execution of a plurality of copies of a test program, with the number of copies executing simultaneously relates to the load condition. (Weinberg, Col. 33, lines 24-39, "To define a scenario, the user initially uses the Web Vuser Generator component to generate the Web scripts to be included within the scenario...the user specifies such details as the number of Vusers, the Web script to be run...and the number of consecutive times...The user can also define one of more Sgroups, and can specify various testing parameters...").

Per claim 14:

-the step of specifying an output format includes specifying a method by which response is measured. (Weinberg, Col. 32. line 64 – col. 33, line8, "Vuser monitors the Web site's responses to the client requests submitted by that Vuser, and records various performance-related

characteristics of these responses...These characteristics include, for example, response times...user is presented with a set of graphical reports that allow the user (to) evaluate the site's performance...").

Per claim 15:

-the step of gathering test data includes recording the execution time between selected points in the test program for each simultaneously executing copy of the test program and analyzing the recorded execution times for all copies of the test program. (Weinberg, Col. 33, line 5-6, "...user can...compare response times of different site components...").

Per claim 16:

-the step of analyzing comprises determining the average and maximum execution times for each of the load conditions. (Weinberg, Col. 32. line 64 – col. 33, line8, "Vuser monitors the Web site's responses to the client requests submitted by that Vuser, and records various performance-related characteristics of these responses...These characteristics include, for example, response times...user is presented with a set of graphical reports that allow the user (to) evaluate the site's performance...").

Per claim 17:

-the computerized application under test comprises software resident on a server controlling access to a computerized database. (Weinberg, Col. 3, lines 5-15, "...based on information stored within a server access log file. The server access log file is ...generated by...Web server. These log files contain information about accesses..." Also see fig. 13, item 180 and col. 25, lines 3-11, "...specifies ...other Web server extension component 180 to which the form is addressed...Astra extract the dataset...");

-the server is connected to a network and the application under test is simultaneously accessed by a plurality of clients over the network. (Weinberg, Fig. 11 and fig. 25);

-the test system is resident on at least a second server connected to the network. (Weinberg, Figs. 11 & 25).

Per claim 18:

-a) providing test code to exercise a selected software component: (Logan, fig. 5 and col. 6, lines 59-64, "...test code generator software program...to generate ...test")

-b) creating a first plurality of copies of the test code; (Logan, col. 6, line 67 – col. 7, line 1, "...test case code generator generates the skeleton test cases by way of the java.introspection facility...")

-c) simultaneously executing the first plurality of copies of test code while recording times between events in each of the first plurality of copies of test code; (Logan, col. 7, lines 30-35. See "background automates tests.")

-d) creating a second plurality of copies of test code; (Logan, col. 7, lines 16-20, "...a skeleton test suite program is generated that can then be individualized for specific test cases of the component and integrated into the testing execution framework to automatically execute each test case and post test results...")

-e) simultaneously executing the second plurality of copies of test code while recording times between events in each of the second plurality of copies of test code; (Logan, col. 2, lines 42-47, "Testing tools include facilities for: developing and executing suites of related test cases...")

-f) repeating a predetermined number of times the steps of creating plural copies of the test code and simultaneously executing the plural copies while recording event times; (Logan, col. 4, lines 57-60, and col. 6, line 29, "...repeating an established suite of tests...")

-g) analyzing the recorded times to present information on the performance of the software component of the application under test as a function of load. (Logan, col. 7, lines 33-34, "...comparison between the expected outcome and the actual outcome can be performed...")

Per claim 20:

-software component has a plurality of functions therein and the test code exercises functions of the software components. (Logan, col. 6, lines 61-63, "...generate a basic core API test skeleton program that systematically exposes all protected methods...")

Per claim 21:

-the events at which times are recorded includes times at which commands are issued to access functions of the software components and times at which execution of the commands are completed. (Logan, col. 7, lines 25-40.)

Per claim 22:

-a) coordination software; (Weinberg, Abstract lines 1-4 and Logan, col. 2, lines 19-22.)

-b) at least one code generator, receiving as an input commands from the coordination software and having as an output client test code; (Weinberg, Abstract, lines 20-22, "A Load Wizard module uses this activity data to generate testing scenarios..." and Logan, col. 6, lines 59-60.)

-c) at least one test engine, receiving as an input commands from the coordination software, the test engine comprising a computer server having a plurality of threads thereon, each thread executing an instance of the client test code; (Weinberg, figs. 25&30)

-d) at least one data log having computerized memory, the memory holding timing data created

by the instances of the client test code in the plurality of threads; (Weinberg, col. 32, lines 64-

67.)

-e) at least one data analyzer software, operatively connected to the data log, having an output

that represents performance of the software component of the application under test in response

to load. (Weinberg, col. 33, lines 3-4, "...user is presented with a set of graphical reports..." and

Logan, fig. 3.)

Response to Arguments

11.   Applicant's arguments filed 21 January 2003 have been fully considered but they are not

persuasive.

Applicants have argued, in substance, the following:

The invention tests technology based software components (components cobbled together

to make up an application). Weinberg tests the entire application as a single unit, not the

individual components.

It is noted that the Weinberg reference was relied on as a web site analysis program with

the ability to generate testing scenarios for load testing a web site. Logan provided more details

on testing individual components of an application (col. 6, lines 52-54.)

Therefore, the rejection of claims 1-18, and 20-22 is proper and maintained herein.

Conclusion

12.   **THIS ACTION IS MADE FINAL.** Applicant is reminded of the extension of time

policy as set forth in 37 CFR 1.136(a).

A shortened statutory period for reply to this final action is set to expire THREE

MONTHS from the mailing date of this action. In the event a first reply is filed within TWO

MONTHS of the mailing date of this final action and the advisory action is not mailed until after

the end of the THREE-MONTH shortened statutory period, then the shortened statutory period

will expire on the date the advisory action is mailed, and any extension fee pursuant to 37

CFR 1.136(a) will be calculated from the mailing date of the advisory action. In no event,

however, will the statutory period for reply expire later than SIX MONTHS from the mailing

date of this final action.

13.   The prior art made of record and not relied upon is considered pertinent to applicant's

disclosure.

U.S. Patent No. 4,617,663 to Lake et al., (Interface testing of Software systems,

generating software scripts.)

U.S. Patent No. 5,671,351 to Wild et al., (System and method for automated testing and

monitoring of software applications, outputs report.)

U.S. Pat No. 5,812,780 to Chen et al., (Method and system and product for assessing a

server application performance. Fig. 7 & col. 15, line 65 – col. 16, line 55, "…analysis of the

simulation results represented by the task response times found in the log file occurs at

performance analysis step 66…." & col. 15, line 36 – col. 16, line 51, "Once a task is completed,

the total time for completion is calculated at log response times …After the execution of the user

load simulation…analysis of the simulation results …found in the log file occurs at performance

analysis step 66. Performance analysis…comprises ordering the response times…other response

time based statistics could advantageously be used as part of he present invention…weighted

average response time...Network administrators may make graphs..." & col. 16, lines 6-7,

"...ordering the response times...from the quickest to the longest...")

U.S. Pat No. 5,881,269 to Dobbelstein, (Simulation of multiple local area network clients

on a single workstation.)

U.S. Pat No. 6,002,871 to Duggan et al., (Multi-user application program testing tool.)

14.   Any inquiry concerning this communication or earlier communications from the

examiner should be directed to Mary Steelman, whose telephone number is (703) 305-4564. The

examiner can normally be reached Monday through Thursday, from 7:00 A.M. to 5:30 P.M. If

attempts to reach the examiner by telephone are unsuccessful, the examiner's supervisor, Tuan

Dam can be reached on (703) 305-4552.

The fax phone numbers are (703) 746-7240 for regular communications and (703) 746-

7239 for After Final communications. Any inquiry of a general nature or relating to the status of

this application or proceeding should be directed to the receptionist whose telephone number is

(703) 305-3900.

Mary Steelman

07/21/2003

TUAN Q. DAM
PRIMARY EXAMINER